



REPORT 8
OF
W. SHANLY, ESQ., C.E.,
TO THE
DIRECTORS
OF THE
Caughnawaga Ship Canal Co'y.

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Canal and Ship Canal Co.

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REPORT
OF
WALTER SHANLY, ESQ., C.E.,
ON THE
Caughnawaga Ship Canal.

NORTH ADAMS, (Mass.)
24th AUGUST, 1874.

HON. JOHN YOUNG,
President Caughnawaga Ship Canal Company,

DEAR SIR :

In compliance with your request, that I would examine into, and give my views of, the cost of constructing the "Caughnawaga Canal," so called, and state my opinion, generally, as to the desirability of the work and its probable effect on the trade of the country, I now beg to say :—

First—as respects *cost*—I have made an estimate based on the dimensions of the Canal proposed by the late J. B. Mills, Civil Engineer, in 1848, and which are identical with those of the existing St. Lawrence Canals—Locks 200 x 45 feet, with 9 feet of water on the sills.

I, of course, accept as correct Mr. Mills' quantities of the several kinds of work embraced in the construction of the Canal on the plan referred to, and do so with the utmost confidence in their reliability ; a confidence inspired by my knowledge of the care and accuracy with which such calculations ever came from the hands of my deceased friend, and, at one time, professional chief.

His estimate of cost amounted in the aggregate to \$1,814,408 which, under the prices ruling for such kind of work five and twenty years ago, would have been ample at the time, but in view of the great advance in the value of

labour, materials, lands, and all things else entering into the cost of undertakings of the sort, I cannot bring the amount that would now be required to complete "Mr. Mills' Canal" in a proper and substantial manner below \$3,763,000 in which, however, permanent stone structures are provided for where, in some cases, aqueducts for instance, the original estimate contemplated using wood.

Having now entered upon (at least we have been told so ; the external manifestations of the fact are not wholly convincing yet) a second era of Canal enlargement in Canada the "Caughnawaga" scheme will, of course, have to be reconsidered and remodelled in some of its originally proposed details to make it fit in with the other parts of the system—whatever that is to be. The dimensions adopted for the new, or improved, Welland Canal are—Locks 270 x 45 feet, with 12 feet water on the Mitre Sills.

Not having access to Mr. Mills' detailed plans and notes of survey I am without the requisite *data* for making more than an approximate estimate of the cost of constructing the Caughnawaga Canal on the scale of the "enlarged Welland," but, *approximately*, I would not venture to state the additional outlay at much less than 50 per cent. advance on the cost of the lesser work. In other words, the Caughnawaga Canal on the dimensions above assigned to the Welland would involve an outlay of some \$5,500,000. But I do not think that such large capacity, in respect of depth at all events, is needful to ensure to a Canal connecting the St. Lawrence with Lake Champlain its fullest measure of usefulness and success. The difference in cost between a Canal adapted to vessels of 12 feet draft and one of two feet less depth would, in this instance, be not far short, probably, of a million and a quarter of dollars. Ten feet draft is as much as is required, and on that basis the Caughnawaga Canal may be constructed for about \$4,250,000.

So much for my views on the *cost* question, and now, with your permission I will touch upon the general proposition of the improvement and perfecting of our Canal system, as bearing on the Lake Champlain connection.

It is undoubtedly desirable and important that our river improvements—St. Lawrence and Ottawa alike—should be of uniform design ; parts of one system : but I hold that the Welland Canal ought to be conceived and carried out on a widely different scale as having a different mission to fulfil. The object of the Welland is, or should be, to do away with, so to speak, the barrier dividing Lake Ontario from the Lakes above, by making the Canal of such ample proportions as will pass, with the least perceptible interruption possible, the largest vessels employed in the carrying of flour and grain. Chicago harbour, formerly adapted to vessels of ten feet draft only, has been improved to 14 feet of depth and with any less water on its lock-sills the Welland Canal will not properly accomplish the object indicated above. The

largest propellers loading in Chicago or other upper-lake ports should, at least, be allowed the option of proceeding without break of bulk to the extremest easterly point of *lake navigation* in Canadian waters—Kingston or Prescott. Let the bulk, or even a fair proportion of the bulk, of Western freight once get down into Lake Ontario and we of the River can battle for it with every certainty of being able to carry off the victor's share.

Transshipment from lake vessels to river and canal craft will be the *rule* in our St. Lawrence carrying-trade. Occasionally, in the future as now, a ship will clear from Lake ports for a trans-oceanic voyage, and, then as now, let us "improve" our river navigation to the utmost possible capacity that money can effect, will find herself taking low rank among and, consequently unfitted to compete on equal terms with purely sea-going vessels. Direct freighting from the Lakes to Europe will, therefore, for ever be exceptional. Transshipment will be the rule *because it will pay best all round* and the first transfer of cargo will for the most part take place at the point beyond which, because of the shallowing of the water, the largest lake-vessels cannot descend. *The River navigation never can be improved to the capacity of the Lakes* and sailing-masters will not throw away the advantage of the two, three, or four feet greater draught that lake navigation will allow of, as compared with the river, merely that they may pass "clear through" to Montreal or Quebec, or, mayhap, odd times to Liverpool.

If then lake-navigation is always to imply a totally different class of vessels from that best suited to the river, the next point to be considered is—what is the most fitting craft for the latter service and what the extreme depth of water really needed for such craft, and that can be obtained within reasonable limits of expenditure.

The bulk of the grain trade from Kingston to Montreal has for the last ten years or thereabouts been done by means of barges of the extreme size that the St. Lawrence canal-locks are capable of passing, and the capacity of the largest of which (the barges) may, I suppose, be taken at about 22,500 bushels. If then, as is, I think, easily susceptible of proof, no cheaper, safer, or speedier mode of transporting flour and grain over the river portion of the route between Chicago and the ocean (or ocean vessel) can be devised the barge undoubtedly will continue to be employed to the exclusion of almost every other kind of craft, and the use of propellers for the carrying of those commodities through river and canal, each propeller with engine power enough for the movement of half a dozen barges, each carrying a propeller's cargo, will, year by year, bear diminishing proportions to the barge fleet.

The St. Lawrence Canals, as already noted, have Locks of 200 x 45 feet and were meant to have 9 feet of available depth; but, as a matter of fact, not above 8½ feet can be depended on; not, at all events, in such low-water periods

as we have been having experience of in recent years. Had those works been designed in the first instance for ten feet draught and the sills of the Locks put down to where that depth would have always been certain, we should probably never have heard much about future enlargement—not as to depth at any rate. To improve those Canals to ten feet draft now will be a work of very large expense, only to be achieved at serious temporary inconvenience to the trade of the river, and it may be worth weighing whether prudence would not counsel to abandon the attempt to deepen them and instead, to give the Forwarders' compensation in increased *length* of lock—a simple and inexpensive mode, as compared with the delay and cost of deepening, and where expediency has to be practiced, of gaining increased capacity. The St. Lawrence Canals as they are, even, are capable of doing a large business in our season of 200 days, or thereabouts. *They have never yet been taxed to anything near their full powers of accommodation.* I am quite sure that seventy-five million bushels in the season, and that means a very large business, would not *over-tax* them. Still increased capacity will be demanded and in one form or another must be conceded, but whatever the plan adopted I hold to ten feet as the greatest depth of which river navigation, without incurring needlessly large outlay, is susceptible and that for that depth all future improvements, on both rivers, should be planned and to that depth limited.

While touching thus generally on the improvement of the navigation between Kingston and Montreal I would note that the *Lachine* Canal, having to serve the trade of both rivers, would seem to demand a different mode of treatment from what may be properly applicable to the other links in the chain, and should, therefore, be "contrived a double debt to pay" by giving it additional width and duplicated locks.

With such views then, as to the depth fully and best suited for our river improvements, I recommend that the Caughnawaga Canal be planned for ten feet of water on the Mitre-Sills and in closing my remarks on this most important subject of Canal enlargement and *extension*, I would record my conviction that it will be as great a mistake to limit our *lake* navigation to vessels of *twelve* feet draft, as by giving the Welland Canal that much clear depth, only, we practically do limit it, while Buffalo will be bidding against us with the immense odds of two feet greater draft in its favour, as it will be to seek for more than *ten* feet in the *river*. The money that would be needlessly expended in attempting to obtain 12 feet draft below Prescott would far more than pay for the difference in cost between fourteen and twelve feet in the Welland.

Next—as to the uses and, as I believe, certain effects of connecting our St. Lawrence and Ottawa navigation directly with Lake Champlain I have always thought the Caughnawaga Canal an essential and naturally necessary

link in—and, therefore, a blundering omission from—our general Canal system. The object of constructing those immensely costly works, which, take one year with another in the quarter of a century in which they have been in use, have never yet earned their living, should have been to do all the business they could possibly attract and were capable of doing : not to use them merely to subserve the interests of one particular locality, but to secure to *all* Canada her natural right—a right inherent in her waters—of being the carrier of the products of half the Continent almost. Had the Caughnawaga Canal been made, as it should have been made, immediately following Mr. Mills' Survey in 1848 we would all these years have been doing a large carrying trade for the New England States instead of a limited one only for Montreal : doing an immense forwarding business in place of what, in comparison with what we might have had, has been, and even yet is, an insignificant one. In New England the "The West" has its steadiest customer. In good years or bad she buys Western-grown cereals all the same ; not raising enough off her own soil, all the way from Maine to Connecticut to feed her population for, probably, one month out of the twelve. New England has, so to speak, no cereal crop. Her capital and labour are embarked in other lines of industry better suited to her condition and resources.

The breadstuffs and salted provisions, of which the Eastern States are such large consumers, reach their markets mainly by way of Albany and are mainly transported that far by water—Lakes and New York Canals. Another portion descends the St. Lawrence to Ogdensburgh and is there, as at Albany, transferred to the rail. Doubtless, also, a considerable quantity goes by steamer from Baltimore and Philadelphia to Boston and other "down East" ports. The distribution through the interior of the country is wholly by rail, of course.

That these commodities could be laid down more speedily and at lesser transportation charges in Lake Champlain by way of the St. Lawrence and Caughnawaga Canals than they could reach the New England border by way of Ogdensburgh or Albany is simply an incontestable proposition. The bulk of the business now takes the Erie Canal route and, compared with it the Caughnawaga could certainly show a gain in point of time of not less than three days, and in point of expenses of not less than 25 per cent., as between Chicago and Albany on the one hand and Chicago and, say, Burlington on the other. New England will have her food-supplies from the West whether we carry them for her or not, but, assuredly, she will not object to our carrying them provided we can do the business with better despatch and more cheaply than others can, and the producers in the West will be equally ready on the same conditions to entrust the transportation business to Canadian carriers.

And now a word about New York trade. Montreal merchants have always

urged what has always seemed to me a senseless and unreasoning antagonism to the Caughnawaga Canal project. They have argued that its construction by Canadians would be a suicidal act—tapping Canadian trade to send it away to New York. From Caughnawaga to Montreal is a short nine miles. From Caughnawaga to New York a round four hundred. Is the harbour of Montreal, I would ask ; the means it affords for the handling and shipping of grain and all other freights ; the business capacity and enterprise of her merchants and shipmasters, and everything else all round pertaining to Montreal—are all these essentials to a great sea-port city so utterly wanting, I repeat, that it will *pay better* for the vessel laden with Western products arrived in Lake St. Louis to head southwards and worm its way through some 400 miles of canal, lake and river to New York rather than drop quietly down over nine miles of water-surface to Montreal where she can be alongside as good, as big and as seaworthy a ship as New York would have to offer her, in fewer hours than it would take days to reach the latter port, and at a twentieth part of the expense ? To such a question Montreal people, Board of Trade included, have over and over again, in effect and emphatically, answered “Yes, that is just what would happen : our trade would be tapped and we would die of inanition.” They forget, or else have never thought, or known, that the trade which they cry would be turned away from them never was “theirs” and that none of what you and I and a few others would like to see enriching Canadian waters has ever, save in mere dribblets, come any nearer to our doors than Oswego, to the trade of which place the Welland Canal has hitherto ministered quite as much as to that of the St. Lawrence. With the “cut-off” point for New York transferred from Oswego to Caughnawaga, Montreal would be in a position to “tap” New York business instead of New York tapping hers.

However the export trade of Montreal may grow, New York will none the less continue to increase and flourish, and the only way in which we of Canada can have part or lot in her prosperity will be by carrying for her what she will have brought to her *anyhow*, and in our capacity as carriers it will be possible for us to make gain for ourselves from her necessities. With direct navigable access from the St. Lawrence to Lake Champlain Western New York interests directly opposed to ours *in all things*, could no longer hinder the enlargement of the Northern Canal (Whitehall to the Hudson) because the City of New York would find it absolutely necessary to take the benefit of *the cheapest transportation route on the Continent* by meeting us in Lake Champlain. When that time comes—then for *one* vessel we now meet dotting the surface of our great river at long intervals apart, all the way from Prescott down, we will espy *ten*, all doing good to the country as they pass along, putting in at one river port for fuel, at another for provisions, and, in one way or another, ‘leaving money’ everywhere—even in the form of wages, for all craft, wheresoever owned, will, then as now, be largely manned by Canadian crews.

The lifelessness of our waters between Lake Ontario and Montreal is noted by all observant tourists and the reproach will never be wiped out so long as the idea prevails and is acted on that Canadian carrying business must be limited to what of Western products Montreal can take and dispose of to her sole advantage. When we begin to carry for all comers, and we will begin, for it is the destiny of the river and those who rule it, Montreal will quickly learn that she has been living in error for a quarter of a century (the age of our canals) and that the more business we can induce down the St. Lawrence, whatever its seaward destination, the better it will be for the country and, consequently, for the commercial capital of the country. Montreal can well afford to cease opposing, if she will not aid, the Caughnawaga Canal enterprise.

In opposing it her people act as though her advantages as a seaport were purely adventitious and only to be maintained by placing unnatural restrictions on the carrying capacity of those great waters through means of which it mainly is that Canada is to continue to increase in wealth, distinction and importance.

I have frequently heard it argued in discussions on this question of International carrying trade that the navigation laws of the United States would for ever prevent our reaping commensurate benefits from the expense attending the extension of our canal system southward. Members of more than one Administration have used that argument against adopting the Caughnawaga Canal project as a Government Work. I would allow no such phantom to "stop the way." If by opening a channel into Lake Champlain we can accomplish what I have endeavoured to foreshadow above—the cheapening of the transportation of breadstuffs and, so, raising their value at the place of production—the United States navigation laws will be looked after at home. We can leave that little matter, whether we are to have a general Reciprocity Treaty or not, to be attended to by the GRANGERS and their friends.

I have not, while writing this letter, had means of access to such recent statistics as would enable me to enter into detail on the sources at a probable amount of revenue on which the "Caughnawaga Ship Canal Company" may reckon for making the undertaking a direct financial success; but drawing its sustenance, as it would, from both of Canada's great rivers—the St. Lawrence with its almost illimitable grain trade; the Ottawa with its immense lumber business; and all the minor classes of traffic growing out of and increasing with the two greater ones, returns sufficient to pay handsomely on the cost of a ten-foot navigation may, I believe, be hopefully and confidently looked for.

When, some few years back, Canada rose to the dignity of a DOMINION those who believed that her future was largely dependent for its greatness on

the uses to be made of her unrivalled lakes and rivers specially welcomed that clause in the programme of Confederation which foreshadowed the early and complete utilization of our water-highways. But the "word of promise" then given "to the ear" has been "broken to the hope." With a material advancement in almost every other direction such as Canadians may well be proud of, our canals to-day are just where and what they were then and for twenty years before. Liberal almost to lavishness in our appropriations for all other classes of public works, the noblest portion of our heritage has been treated with an approach to indifference and neglect. "Millions for railways, not one cent for navigation" would not inaptly characterise what has been our policy of expenditure. We stand ready to pledge the credit of Canada to its utmost borrowing capacity in pursuit of phantom railways to the Pacific, or anywhere else, but can scarce spare a thought—or a dollar—for the improvement of the river. In all the leading journals of the country, railway questions command columns of editorials where the Welland Canal could hardly obtain lines. I am of those who hold that for railways, as national undertakings, we have, for the present at all events, done our whole duty, and that we will best consult the future of Canada and best promote the development of her magnificent resources by, henceforward for a time, directing our thoughts, energies and means in improving and perfecting to the fullest measure of its capacity that which, in all its natural aspects certainly, is the grandest system of internal navigation in the world.

Yours very truly,
W. SHANLY.

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